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...udent and teacher: Use this cover sheet for mailing or faxing.

ASSIGNMENT BOOKLET 7A

MAT3037 Pure Mathematics 30
Module 7: Section 1 Assignment

FOR STUDENT USE ONLY	
Date Assignment Submitted: _____	(If label is missing or incorrect) Student File Number: _____
Time Spent on Assignment: _____	Module Number: _____

FOR OFFICE USE ONLY

Assigned Teacher: _____

Assignment Grading: _____

Graded by: _____

Date Assignment Received:

Student's Questions and Comments

Apply Module Label Here

Name

Address

Postal Code

Please verify that preprinted label is for correct course and module.

Teacher's Comments

_____
Teacher

INSTRUCTIONS FOR SUBMITTING THIS DISTANCE LEARNING ASSIGNMENT BOOKLET

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- Are all the assignments completed? If not, explain why.
- Has your work been reread to ensure accuracy in spelling and details?
- Is the booklet cover filled out and the correct module label attached?

MAILING

1. Do **not** enclose letters with your Assignment Booklets. **Send all letters in a separate envelope.**

2. Put your Assignment Booklet in an envelope and take it to the post office and have it weighed. Attach **sufficient postage** and seal the envelope.

FAXING

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E-MAILING

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Pure MATHEMATICS 30

Module 7

Probability and Statistics

Assignment Booklet 7A

Learning Technologies Branch

Alberta EDUCATION

FOR TEACHER'S USE ONLY

Summary

	Total Possible Marks	Your Mark
Section 1 Assignment	35	

Teacher's Comments

Pure Mathematics 30
Module 7: Probability and Statistics
Assignment Booklet 7A
Section 1 Assignment
Learning Technologies Branch
ISBN 0-7741-2814-3

The Learning Technologies Branch acknowledges with appreciation the Alberta Distance Learning Centre and Pembina Hills Regional Division No. 7 for their review of this Assignment Booklet.

This document is intended for	
Students	✓
Teachers	✓
Administrators	
Home Instructors	
General Public	
Other	

You may find the following Internet sites useful:

- Alberta Education, **http://www.education.gov.ab.ca**
- Learning Technologies Branch, **http://www.education.gov.ab.ca/ltb**
- Learning Resources Centre, **http://www.lrc.education.gov.ab.ca**

Exploring the electronic information superhighway can be educational and entertaining. However, be aware that these computer networks are not censored. Students may unintentionally or purposely find articles on the Internet that may be offensive or inappropriate. As well, the sources of information are not always cited and the content may not be accurate. Therefore, students may wish to confirm facts with a second source.

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ASSIGNMENT BOOKLET 7A
PURE MATHEMATICS 30: MODULE 7
SECTION 1 ASSIGNMENT

This Assignment Booklet is worth 35 marks out of the total 100 marks for the assignments in Module 7. The value of each assignment and each question is stated in the left margin.

Read all parts of your assignment carefully and record your answers in the appropriate places. If you have difficulty with an assignment, go back to your Student Module Booklet and review the appropriate activity. Be sure to proofread your answers carefully before submitting your Assignment Booklet.

(35)

Section 1 Assignment: Probability

Clearly show how you arrived at your answers by showing your work.

(3)

1. Children's meals are being prepared for a large gathering. There is an equal number of chicken, hamburger, and fish meals. Each meal comes with a toy: a ball, a parachute toy, or a Frisbee. There are twice as many balls as Frisbees and an equal number of parachutes and Frisbees.

Determine the probability that a meal consists of chicken or fish and comes with a ball.

(3)

2. Students are sitting in rows in the school theatre ready to watch a musical group perform. In the fourth row from the front, there are 25 students consisting of 6 grade 10s, 8 grade 11s, and 11 grade 12s. A draw for 3 CDs was conducted before the show started, and all three winners came from the fourth row.

What was the probability that the CDs were won by 3 students in the same grade? Assume the three CDs are all different, and round your answer to 4 decimal places.

3. A grade 9 class playing badminton in the gym didn't clean up very well after they were done. When the janitor swept up, there were 12 feathered shuttlecocks and 9 plastic shuttlecocks in the pile. They were put in a bag to show to the class the next day. If two shuttlecocks were pulled from the bag without replacement, determine the probabilities of the following:

(2)

a. 1 plastic and then 1 feathered shuttlecock

(2) **b.** 1 plastic and 1 feathered shuttlecock

(2) **c.** at least 1 plastic shuttlecock

(3) **4.** Zayra wrote a computer program that randomly printed the letters of the words given to it. The program is given the word REPEAT. What is the probability that it prints out the letters so they spell the word REPEAT? Round your answer to 4 decimal places (if necessary).

5. One particular high school encourages students to donate blood. The high school gym is set up for this purpose. The distribution of blood types in North America is as follows:

type O: 44% type A: 42%
type B: 10% type AB: 4%

(3) **a.** What is the probability that the first two people in the line up have the same type of blood? Express your answer to the nearest hundredth of a percent.

(3) **b.** What is the probability that none of the first five people in the line up have type AB blood? Express your answer to the nearest hundredth of a percent.

(3) **6.** To play a game, a die is rolled to see who plays first. Four players are going to play the game. What is the probability that at least two people roll the same number? Express your answer to the nearest tenth of a percent.

7. Investors do not invest all their money in the investment predicted to be the best because it is too risky. An investor holds shares in three independent companies: Company A, Company B, and Company C. An analyst predicts the probability of profit increases for each company as follows:

Company A: 0.70
Company B: 0.50
Company C: 0.65

(2) **a.** If the analyst's predictions are true, what is the probability that all three companies show a profit increase? Express your answer to the nearest hundredth of a percent.

(2) **b.** If the analyst's predictions are true, what is the probability that at least one company shows a profit increase? Express your answer to the nearest hundredth of a percent.

(3)

8. A committee is to be formed to investigate what activities teenagers have available in small communities. The committee is to have 7 members, chosen randomly from interested community members. There are 10 parents, 5 teenagers, and 4 adults without children who have all expressed an interest in serving on the committee.

What is the probability that the adults without children are chosen for the committee? Express your answer to the nearest tenth of a percent.

(4)

9. A community meeting was attended by 37 parents along with 26 high school students. A committee is to be formed to find ways to encourage students to take calculus before graduating high school. This committee will consist of 8 people: 4 parents and 4 students. If you are one of the students at the meeting, what is the probability that you will be chosen for the committee? Round your answer to 4 decimal places.

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ASSIGNMENT BOOKLET 7B

MAT3037 Pure Mathematics 30
Module 7: Section 2 Assignment and Final Module Assignment

FOR STUDENT USE ONLY	
Date Assignment Submitted: _____	(If label is missing or incorrect)
Time Spent on Assignment: _____	Student File Number: _____
	Module Number: _____

FOR OFFICE USE ONLY

Assigned Teacher: _____

Assignment Grading: _____

Graded by: _____

Date Assignment Received:

Student's Questions and Comments

Apply Module Label Here

Name

Address

Postal Code

Please verify that preprinted label is for correct course and module.

Teacher's Comments

_____
Teacher

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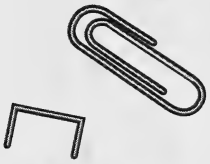
Pure MATHEMATICS 30

Module 7

Probability and Statistics

Assignment Booklet 7B



Learning Technologies Branch

Alberta EDUCATION

FOR TEACHER'S USE ONLY

Summary

	Total Possible Marks	Your Mark
Section 2 Assignment	35	
Final Module Assignment	30	
	65	

Teacher's Comments

Pure Mathematics 30
Module 7: Probability and Statistics
Assignment Booklet 7B
Section 2 Assignment and Final Module Assignment
Learning Technologies Branch
ISBN 0-7741-2815-1

The Learning Technologies Branch acknowledges with appreciation the Alberta Distance Learning Centre and Pembina Hills Regional Division No. 7 for their review of this Assignment Booklet.

This document is intended for	
Students	✓
Teachers	✓
Administrators	
Home Instructors	
General Public	
Other	

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ASSIGNMENT BOOKLET 7B
PURE MATHEMATICS 30: MODULE 7
SECTION 2 ASSIGNMENT AND FINAL MODULE ASSIGNMENT

This Assignment Booklet is worth 65 marks out of the total 100 marks for the assignments in Module 7. The value of each assignment and each question is stated in the left margin.

Read all parts of your assignment carefully and record your answers in the appropriate places. If you have difficulty with an assignment, go back to your Student Module Booklet and review the appropriate activity. Be sure to proofread your answers carefully before submitting your Assignment Booklet.

50

Section 2 Assignment: Statistics

Clearly show how you arrived at your answers by showing your work.

1. Statistics Canada reported that approximately 76% of families in Edmonton consist of married couples. There are 22 students in a grade 3 class. The school administration records whether they live with both biological parents who are either married or living common-law. If the child is from a single-parent home, they record the parent with which the child lives.

(2) **a.** What is the probability that exactly half the students have families where the parents are defined as a married couple? Express your answer to the nearest tenth of a percent.

(2)

b. What is the probability that at least one student does not have parents that are defined as a married couple?

(2)

2. The following table gives the amount of money John made selling ice cream treats during the local exhibition. Determine the mean and standard deviation of John's income for these 11 days. Round your answer to the nearest cent.

Day	10	11	12	13	14	15	16	17	18	19	20
Income	$65	$56	$75	$45	$57	$59	$78	$49	$63	$51	$58

(1)

3. The calculated standard deviation of a set of test marks is 13.65. The teacher then gives everyone a bonus of 4 marks because one question was poorly constructed. What is the standard deviation after the bonus marks are applied? Explain your reasoning.

(4) **4.** When reporting results to head office, Janice was told to make sure that the mean is 100 and the standard deviation is 10. When she calculated these statistical measures, she found the actual standard deviation to be 8.4 and the mean to be 106.5. Explain what Janice has to do before sending her results to head office.

(1) **5.** Lee looked at the results of an exam he had just given to his grade 2 math class. He saw that Louise had a score of 95%. He also saw that the standard deviation for the test was 0. If Arif was also in his grade 2 math class, what mark did Arif get on the exam?

(3) **6.** The probability of Signor going through a math class without laughing is 26%. What is the probability of Signor going through exactly 4 of his next 5 math classes without laughing? Round your answer to the nearest tenth of a percent.

(3) **7.** In one Alberta town, 74% of the homes have satellite dishes. A pollster randomly sampled 50 homeowners from the town. What is the probability that at least 42 of them have satellite dishes? Round your answer to 4 decimal places.

(3) **8.** At the Whistlestop Café, 15 of the 19 patrons are mechanics. If a sample of 8 is taken, what is the probability that exactly 5 patrons are mechanics? Round your answer to 4 decimal places.

(3) **9.** After extensive study on a particular beach, it is concluded that the probability of a grain of sand being black is 13%. What is the probability that exactly 5 of 30 grains of sand chosen from the beach will be black? Round your answer to 4 decimal places if required.

(4) **10.** Krina works in a call centre assisting home-computer users. The average length of a call in her centre is 605 s. Her last call took only 569 s. Her manager offers a bonus for calls that are handled efficiently and quickly. If a call is handled more quickly than 95% of calls, a $2 bonus is paid. What is the largest standard deviation for calls that would let Krina's latest call get the bonus? Round your answer to 2 decimal places (if needed).

(3) **11.** The scores for a particular examination are normally distributed with a mean of 54.8% and a standard deviation of 16.3%. What is the probability that a student who wrote the examination had a mark of 75% or more? Round your answer to 4 decimal places (if needed).

(4) **12.** A biology teacher recorded the lung capacity of each 16-year-old in her school. The teacher determined that the values were normally distributed with a mean of 3500 mL and a standard deviation of 300 mL. If 23% of the 16-year-olds' lung capacities were less than Samantha's, what is Samantha's lung capacity? Round your answer to the nearest millilitre.

30

Final Module Assignment

Clearly show how you arrived at your answers by showing your work.

1. Recently, the number of hours Canadians listen to the radio has increased. Statistics Canada determines information such as this by sending out a questionnaire to a random sample of Canadians. The return rate for this questionnaire is approximately 47%. Approximately 77% of the Canadian population is urban. (The return rate for this questionnaire is not dependent on whether you are an urban dweller or a rural dweller.)

(2) **a.** Determine the probability that a Canadian randomly chosen for the sample is an urban dweller and returns the questionnaire. Express your answer to the nearest hundredth of a percent.

(2) **b.** Determine the probability that a Canadian randomly chosen for the sample is a rural dweller and does not return the questionnaire. Express your answer to the nearest hundredth of a percent.

(3) **2.** The probability of getting a flat tire when driving from Flatbush to Manyberries is 0.284. What is the probability of having a flat tire on exactly 8 of 24 trips between these Alberta locations? Round your answer to 3 decimal places.

(3) **3.** Two standard dice are rolled. Determine the probability that the difference between the numbers on the two dice is 2.

(2) **4.** A popular game show begins with the host reading a question to the contestants. One question involves putting four events (A, B, C, and D) in chronological order. What is the probability that the contestant gets the question correct if he or she just guesses? Express your answer to the nearest tenth of a percent.

5. Five students are equally qualified to represent their school at an awards ceremony. Two students will be randomly chosen to go to the ceremony.

(2) **a.** If Anthony is one of the five students, what is the probability that he will be chosen?

(2) **b.** What is the probability that Anthony and his friend Allecia, who is also eligible, are both chosen?

(2) **6.** A teacher marking an extra credit assignment gave the following marks:

49, 90, 87, 68, 61, 71, 53, 65, 79, 88

What is the z-score corresponding to the lowest mark? Round your answer to 3 decimal places.

(2)

7. What is the mean and standard deviation of the data in the table given? Round your answers to 2 decimal places.

Value	Frequency
4.8	25
5.2	21
5.4	23
5.9	17
6.5	24
6.6	25

8. Data was collected outside a popular new restaurant to determine the mean waiting time to be seated at a table. Assume the data was normally distributed with a mean of 45 min and standard deviation of 12 min.

(2)

a. Determine the probability that a randomly selected person has to wait less than 20 min. Express your answer to the nearest tenth of a percent.

(2)

b. Determine the probability that a randomly selected person has to wait more than 1 h. Express your answer to the nearest tenth of a percent.

(2)

9. A bag of marbles contains 8 red marbles, 3 green marbles, 7 black marbles, and 9 blue marbles. What is the probability of drawing 1 marble of each colour when 4 marbles are withdrawn with replacement?

(4) **10.** The probability of exactly 4 people out of 10 having a red ticket at a charity ball is approximately 0.2508. What is the probability, as a percentage, of a random person having a red ticket? Round your answer to the nearest percent. (**Hint:** red or not red)

LEARNING TECHNOLOGIES BRANCH
DISTANCE LEARNING STUDENT COURSE SURVEY

After you have completed the assignments in this course, please fill out this survey. Your constructive comments will be greatly appreciated, as future course revisions can then incorporate any necessary improvements.

We encourage you to go to our website at ***www.education.gov.ab.ca/ltb*** *and complete and submit this survey electronically. If this is not possible, see the last page of the survey for other ways to submit the survey.*

Age (optional): ❑ under 16 ❑ 16 to 18 ❑ 19 to 40 ❑ over 40

School Where You Are Registered to Take This Course: _____

Course Name: _____ Date: _____

Course Copyright Year (See back cover.) _____

Design

1. The recommended process for students is to work through the Student Module Booklet(s) as instructed and then complete the assignments when directed. Did you follow this process?

   ❑ Yes ❑ No If no, explain.

   _____

   _____

2. The Student Module Booklet(s) contains a variety of self-assessed activities. Did you find it helpful to be able to check your work and have immediate feedback?

   ❑ Yes ❑ No If yes, explain.

   _____

   _____

   _____

3. Were the questions and directions in the Student Module Booklet(s) easy to understand?

   ❑ Yes ❑ No If no, explain.

   _____

   _____

   _____

4. Did you understand what was expected in the Assignment Booklets?

   ❑ Yes ❑ No If no, explain.

   _____

   _____

5. The course materials were designed to be completed by students working independently. Were you always aware of what you had to do?

   ❑ Yes ❑ No If no, provide details.

   _____

   _____

6. This distance learning course may have included an assortment of drawings, photographs, and charts.

   a. Did you find the visuals in this course helpful?

      ❑ Yes ❑ No Comment on the lines below.

      _____

      _____

   b. Did you find the variety of visuals in this course motivating?

      ❑ Yes ❑ No Comment on the lines below.

      _____

      _____

7. Suggestions for Internet use may be included in the course. Were these suggestions helpful?

   ❑ Yes ❑ No Comment on the lines below.

   _____

   _____

8. Some activities may have called for the use of a course or textbook CD. Did you use such resources as instructed?

   ❑ Yes ❑ No Comment on the lines below.

   _____

   _____

9. How did you submit your assignments?

   ❑ mail ❑ fax ❑ e-mail ❑ drop off

10. The Student Module Booklet(s) may have directed you to work with your teacher or to consult with your teacher if you were having problems. How well did you work as a team?

    _____

    _____

    _____

    _____

Course Content

1. Was enough detailed information provided to help you learn the expected skills and objectives?

   ❑ Yes ❑ No Comment on the lines below.

   _____

   _____

2. Did you find the workload reasonable?

❑ Yes ❑ No If no, explain.

_____

_____

3. Did you have any difficulty with the reading level?

❑ Yes ❑ No Please comment.

_____

_____

4. How would you assess your general reading level?

❑ poor reader ❑ average reader ❑ good reader

5. Was the material presented clearly and with sufficient depth?

❑ Yes ❑ No If no, explain.

_____

_____

6. Was a textbook required for the course?

❑ Yes ❑ No If yes, explain where you got it. Did you have any problem getting it?

_____

_____

General

1. What did you like least about the course?

_____

_____

2. What did you like most about the course?

Additional Comments

Only students enrolled with the Alberta Distance Learning Centre need to complete the remaining questions.

1. Did you contact the Alberta Distance Learning Centre for help or information while doing your course?

   ❑ Yes ❑ No If yes, approximately how many times? _____

   Did you find the staff helpful?

   ❑ Yes ❑ No If no, explain.

2. Were you able to fax or e-mail any of your assignment response pages?

   ❑ Yes ❑ No If yes, comment on the value of being able to do this.

3. If you mailed your assignment response pages, how long did it take for their return?

4. Was the feedback you received from your correspondence or distance learning teacher helpful?

❑ Yes ❑ No Please comment.

_____

_____

_____

Thanks for taking the time to complete this survey. Your feedback is important to us. If you are mailing this survey, please use the address on the right. Or, you may e-mail or fax the survey, using the address or number below.

E-mail: ltbgeneral@gov.ab.ca
Fax: (780) 674-6561

If you are enrolled at the Alberta Distance Learning Centre and will be mailing your Assignment Booklets to ADLC, you may return this survey with the final Assignment Booklet in the course.

Learning Technologies Branch
Box 4000
Barrhead, Alberta
T7N 1P4

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